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Application No.: 2007111116
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TRANSLATION

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DECISION ON GRANT
PATENT FOR INVENTION

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PRIORITY IS FIXED ON DATE

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(73) Assignee:	TOYOTA JIDOSHA KABUSHIKI KAISHA, JP
(51) IPC	B 60 L 3/04 (2006.01)
(54) Title	MOTOR VEHICLE CAPABLE OF PREVENTING MULFUNCTION AND INTERRUPTING HIGH-VOLTAGE SYSTEM WHEN ACCIDENT OCCURS

The Examination department basing on the results of substantive examination of the patent application conducted in respect to

☒ originally filed claims ☐ claims amended by the applicant

has revealed their concordance to the requirements of patentability set forth by the Articles 1349 and 1350 of the Civil Code of the Russian Federation and decided to grant the Patent of the Russian Federation.

The following set of claims is enclosed on pages 3 – 6.



(57) CLAIMS

1. A motor vehicle (1) having an air bag, comprising:

an air bag ignition device (24);

a first control unit (22) for detecting an impact against the vehicle and instructing said air bag ignition device to ignite, wherein said first control unit includes a semiconductor impact sensor (46), and a first control portion (44) for outputting a signal for interrupting a high-voltage power supply and a safing signal for interrupting a high-voltage power supply in response to an output of said semiconductor impact sensor;

a high-voltage power supply (6, 8);

an interrupting portion (SMR 1-SMR 3) for interrupting an output of said high-voltage power supply; and

a second control unit (14) for controlling said interrupting portion, wherein said second control unit causes said interrupting portion to immediately interrupt the output of said high-voltage power supply when said signal for interrupting the high-voltage power supply is output, and causes said interrupting portion to interrupt the output of said high-voltage power supply when said safing signal for interrupting the high-voltage power supply is output and when a given criterion is satisfied.

2. The motor vehicle according to claim 1, characterized in that said first control unit (22) further includes a safing sensor (48) for sensing an impact independently of said semiconductor impact sensor, and said first control portion (44) outputs said signal for interrupting the high-voltage power supply when said safing sensor (48) senses an impact and when the output of said semiconductor impact sensor (46) satisfies a given criterion.

3. The motor vehicle according to claim 1, characterized in that further comprising an impact sensor (16, 18, 20) for sensing an impact causing a breakage of said high-voltage power supply, independently of said semiconductor impact sensor, wherein said second control unit (14) includes a second control portion (34) for causing said interrupting portion to interrupt the output of said high-voltage power supply when said safing signal for interrupting the high-voltage power supply is output and when said impact sensor senses an impact.

4. The motor vehicle according to claim 3, characterized in that said first control portion (44) evaluates the output of said semiconductor impact sensor (46) in light of a criterion corresponding to said impact sensor (16, 18, 20) and outputs said safing signal for interrupting the high-voltage power supply.

5. The motor vehicle according to claim 1, characterized in that

said first control unit (22) further includes a safing sensor (48),

said first control portion receives the output of said semiconductor impact sensor (46) and determines whether or not the output meets a first criterion by which the air bag should be inflated, a second criterion by which a circuit related to said high-voltage power supply is assumed to be broken, and a third criterion by which a certain impact is assumed to occur although said first criterion is not satisfied, and

said first control portion outputs said signal for interrupting the high-voltage power supply when determining that the output meets said first criterion or said second criterion and when said safing sensor senses

an impact, and outputs said safing signal for interrupting the high-voltage power supply when determining that the output meets said third criterion.

6. A motor vehicle (1) having an air bag, comprising:

a high-voltage power supply (6, 8);

an interrupting portion (SMR 1-SMR 3) for interrupting an output of said high-voltage power supply in response to a signal for interrupting the high-voltage power supply;

an air bag ignition device (24); and

a first control unit (22), wherein said first control unit includes a semiconductor impact sensor (46) for detecting an impact against the vehicle, a safing sensor (48) for sensing an impact independently of said semiconductor impact sensor, and a first control portion (44) for outputting to said air bag ignition device an instruction to ignite when said safing sensor senses an impact and when an output of said semiconductor impact sensor satisfies a given first criterion, and outputting said signal for interrupting the high-voltage power supply when said safing sensor senses an impact and when the output of said semiconductor impact sensor satisfies a given second criterion.

7. A motor vehicle (1) having an air bag, comprising:

a high-voltage power supply (6, 8);

an interrupting portion (SMR 1-SMR 3) for interrupting an output of said high-voltage power supply in response to a signal for determining interruption of the high-voltage power supply;

an air bag ignition device (24);

a first control unit (22), wherein said first control unit (22) includes a semiconductor impact sensor (46) for detecting an impact against the vehicle, a safing sensor (48) for sensing an impact independently of said semiconductor impact sensor, and a first control portion (44) for outputting to said air bag ignition device an instruction to ignite when said safing sensor senses an impact and when an output of said semiconductor impact sensor satisfies a given first criterion, and outputting a safing signal when the output of said semiconductor impact sensor satisfies a given second criterion; an impact sensor (16, 18, 20) for sensing an impact independently of said semiconductor impact sensor; and a second control unit (14) for outputting said signal for determining interruption of the high-voltage power supply when said impact sensor senses an impact and when said safing signal is output.

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(56) JP 11 170 963 A, 29.06.1990;
JP 7 096 815 A, 11.04.1995;
JP 2003-009303 A, 10.10.2003;
RU 2 208 534 C1, 20.07.2003;
SU 1699833 A1, 23.12.1991.

In publishing information on issue of the patent the description of the invention as originally filed and the drawings will be used as amended (figs. 1 and 2 are amended).

Leading official patent examiner

M. E. Stebeleva